

EV : The Chinese Trap. Options for India

Nexon	On Road Price (Lakhs)	EMI (7 year loan)	Fuel / Electricity (for 1500km per month)	Maintenance	Total	Months	Total	TCO
Petrol	7.50	12,000	6,000	2,000	20,000	84	16,80,000	16,80,000
EV	17.00	27,200	2,000	1,000	30,200	84	25,36,800	32,36,800
Battery Replacement							7,00,000	

Are car companies offering lifetime guarantee on batteries? **If not, who pays for replacement?**

<u>Import Comparison (Impact on Indian Economy)</u>		
Total Petrol Expended for 1.5 lakh km @15km / litre	10,000	Litres of petrol
Barrel of oil to Petrol (Approx Equivalent)	150	Litres of Petrol from 1 barrel
Barrels of oil imported	67	Barrels of oil.
Oil price (can only drop in future. OPEC is increasing production cuts just to hold prices)	50	dollars per barrel.
Import value	3,333	USD (~Rs.2.5 lakhs)
Battery Import (approx. Rs.7 lakhs)	10,000	USD (~Rs. 7 lakhs)

Pollution – Are Lithium Batteries Environmentally Clean?

- Lithium is extremely toxic.
- When batteries are disposed (eventually they will), Lithium will leech into ground water.
- Air pollution can be countered with trees. How do you counter water poisoning which will, in turn, enter the food chain? There is no answer yet.
- Just like nuclear power – once touted as clean energy, but caused environment disasters. No one wants it now.

The Chinese Trap (Who benefits from EVs?)

- China has acquired Lithium mines across the globe. Has virtual monopoly. Still China is writing off \$18 billion dollars subsidy to EV. Withdrawing subsidies from EV. Moving towards Hybrids and Hydrogen.
- Trapping other countries. Exporting poison it is eliminating it in own country.
- Paid media calling Lithium Batteries clean. Ignoring groundwater poisoning which will move up the food chain.
- India has \$60 billion trade deficit with China. Are Indians nincompoops or Chinese shrewd?
- Why can't Google operate in China? Is Google incompetent or blocked by China?
- In every international forum China opposes India – UNSC, FATF, NSG, Kashmir ... Hurts Indian interest at every opportunity. Attacks India at every international forum.

Why is Indian so keen to enrich Chinese by subsidize EV which make no economic sense.

India has no Lithium. Dependence will be perpetual. What if supply is blocked?

Solutions for India

- Hydrogen is the final answer – can be fully indigenous + no air OR water pollution.
- India must invest in Hydrogen research and infrastructure to achieve economy of scale.
- Subsidize Hybrid Cars. 20% mileage improvement is **BETTER** than 20% EV penetration.
- 20% EV penetration is not even POSSIBLE. EVEN with government subsidy.
- Overhead traction buses with rubber tyres. Runs on normal roads in Austria.
- Compressed air pods to replace autos / tempos. Tata and French company launching them in 2020.

Hydrogen vs Lithium

- Hydrogen is being promoted by Japan, South Korea, Australia and Germany. If we have to depend, who is better – China? Or Japan/Germany/Australia/South Korea.
- **Hydrogen will be indigenous. Lithium will never be.**
- **Power sector is becoming sick due to overcapacity – hydrogen is the answer.**

Relative Figures – Import and Pollution

	Import (Rs. Lakhs)		Pollution (Relative)		Remarks
	Oil	Battery	Air	Water	
Petrol	2.50		100%	0%	Maximum Air Pollution
EV		7.00	0%	100%	Maximum Water Pollution
Mild Hybrid	2.00		80%	0%	By 20% extra mileage
Plug in Hybrid	0.40	1.25	15%	15%	Battery 15%. Fuel 15%.
Hydrogen		0.25	0%	5%	

What should India subsidize - Hybrids

- For oil, there are multiple sources; Lithium is a Chinese monopoly.
- Hydrogen economy will take a decade to develop. Hybrids are here and now.
- Economically, EV's don't make sense – hybrids do.
- Hybrids cause least disruption to auto industry. Why chase the Chinese dream?

Why No to EV

1. Make no economic sense.
 2. Critical dependence on China.
 3. Extremely toxic when disposed.
- What do you do when battery replacement is required?** That is the trap.